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[1. Progress]

Report of Working Group on *Arctic fisheries* (the Dynamics of the Arctic Cod)

Fisheries, Bergen, May 19-24, 1959.

1)

Following on previous meetings between Norway and the USSR, and discussions at the Gadoid Fish Committee of ICES in line with the recommendation from the Permanent Commission, the following representatives met to review and exchange data of the Arctic cod fisheries submitted by them:

England: R. J. H. Beverton, Fisheries Laboratory, Lowestoft.  
L. Birkett, " " "

Germany: Arno Meyer, Institute for Seafisheries, Hamburg.

Norway: G. Rollefsen (Chairman), Institute of Marine Research, Bergen.  
G. Sætersdal, " " "  
A. Hysten, " " "  
D. Møller, " " "

USSR: Ul. Ul. Marty, Research Institute of Marine Fisheries and  
Oceanography, Moscow.  
A. I. Treschev, " " "  
L. S. Bogdanov, " " "  
V. I. Travin, Polar Research Institute of Marine Fisheries and  
Oceanography, Murmansk.

2)

The group was unanimous in agreeing that the material submitted was a major contribution to knowledge of the Arctic fisheries, bringing together for the first time information from the countries mainly concerned in these fisheries covering both the pre-war and post-war periods. A list of tables of data submitted by each country is given in Appendix I.

3)

In the first instance, the data relating to the cod fisheries were processed for each of the sub-regions (I, IIa, IIb) separately. So that work on each sub-region could proceed simultaneously, the group divided up as follows:-

Region I (Southern Barents Sea): Norway & USSR  
Region IIa (Norway Coast): Germany & Norway  
Region IIb (Bear Island & Spitsbergen): England & USSR

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Towards the end of the meeting, the results obtained for each sub-region were compared and combined where appropriate. These included statistics of total catch by all countries, data of catch per unit effort, and estimates of total fishing effort, from 1930 to 1958. For the period 1950 to 1958, estimates were obtained of the total number of fish of each size and each age caught by the countries concerned.

4)

It was unanimously agreed that the results so far obtained confirmed the impression that there has been both poor recruitment to the stock of cod and intense fishing on it in recent years, and that the stock has been declining despite the observance by all countries of the 1946 Overfishing Convention as regards the size composition of the catches. The group expresses its concern for the future prospects of the fisheries and emphasises the urgent need to carry through the present investigations to the point at which the requirements of further regulation to maintain the greatest sustainable yield may be assessed.

5)

Owing to the quantity of material involved, the group was unable to complete the analysis of it in the time available. Having regard also to the fact that essential information on gear selectivity will not become available until after the completion next August of the international mesh experiments, in which the above countries are participants, the group decided to have a second meeting in Copenhagen from September 28th to October 4th, i. e. in the week immediately preceding the 47th session of ICES. The objectives of this second meeting will be to complete as far as possible the assessments for the cod fisheries taking into account changes in the geographical distribution of the stocks, to arrive at preliminary conclusions for other species, and to draw up a full report for submission to the Gadoid Fish Committee of ICES.

6)

On the last day of the meeting, the group discussed questions of the design and methods of the international mesh experiment referred to in para 5) above; their suggestions were remitted to Mr. Sætersdal as organiser of the experiment for consideration.

7)

The members of the working group wish to express their appreciation to their chairman, Mr. Rollefsen, for his help and guidance, and their gratitude to the Norwegian Institute of Marine Research for the facilities and hospitality extended to them in Bergen.

Bergen, May 24th, 1959.

APPENDIX.

List of Data Submitted to Bergen Meeting May 1959.

English data:

- Table 1 Length composition of cod from market samples.  
1a Region I  
1b Region IIa  
1c Region IIb
- Table 2 Data on quantities rejected at sea from commercial vessels.
- Table 3 Weight-length relationship.
- Table 4 (a) to 4 (j) Age-length keys for region IIb, 1949-58.
- Table 5 Growth data; mean length-at-age, 1949-58.
- Table 6 Catch and effort statistics for British fishing in regions I, IIa and IIb, 1930-58.
- Table 7 Maturity-length data from Ernest Holt samples, region IIb.
- Table 8 Maturity/length data for cod, Region II(a).
- Table 9 Haddock; catch and effort by regions, 1930-58.
- Table 10 Coalfish, catch and effort by regions, 1930-58.
- Table 11 Plaice; catch and effort by regions, 1930-58.
- Table 12 Redfish; catch and effort by regions, 1935-58.
- Table 13 (a), (b), (c); Haddock; length composition from market samples by regions.
- Table 14 (a), (b), (c); Coalfish; length composition from market samples by regions.
- Table 15 Plaice; length composition from market samples by regions.
- Table 16 (a), (b), (c) ; Redfish; length composition from market samples by regions.
- Table 17 Cod-end mesh selection data for cod ; 105 mm mesh size.
- Table 18 Cod-end mesh selection data for cod; 131 mm mesh size.
- Table 19 Age composition of cod from market samples region iib, 1949-58.
- Table 20a Length composition of cod from Ernest Holt samples region IIb, 1949-58  
b Length composition of cod from Ernest Holt samples, region IIa, 1958-59.
- Table 21 Summary of English cod tagging experiments in Region IIb, 1951-57.

German data:

1. Lundbeck:

Statistical survey of the German trawl fishery in the north-east European waters 1929-1958, with special reference to cod and haddock.

2. Lundbeck:

Survey of the length and age composition of cod and haddock from the north-east European waters landed in German ports 1929-1954.

3. Lundbeck:

Some observations on market selection of cod and haddock on board of German deep sea trawlers 1930, 1931 and 1932.

4. Lundbeck:

Catch per voyage (10 days fishing) of German steam trawlers, converted to the catching power of a 600-800 gross cbm vessel.

5. Meyer:

Length composition, average weight, and average length of cod and haddock from the northeast European waters landed in German ports in 1955-April 1959.

6. Meyer:

1. Age length key and average length (of the dominant year-classes) of cod and haddock from the northeast European waters landed in German ports in 1955 - April 1959.

2. Length-weight relationship of arctic cod landed gutted in German ports.

Norwegian data:

Table Ia.	Length-compositions	long line	Region I	1930-39, 1949-58
Ib.	"	"	trawl	" " 1951-58
Ic <sup>1</sup> .	"	"	"	" " I Ib 1954
Ic <sup>2</sup> .	"	"	"	" " 1958
Id.	"	"	long line	Region IIa 1934-58

Table IIIa.	Age comp. & age/length keys,	long line	Region I	1934-39, 1949-58.
IIb.	"	"	trawl	" I 1950-58
IIc.	"	"	long line	" IIb 1937-39.
IIId.	"	"	trawl	" IIb 1950-51, 1953-54.
IIe.	Mean length of age groups	Region I		
IIIf.	Mean length of age groups	long line	Region II a	1932-57.
IIIg.	Estimated true age distr.	of skrei,	Lofoten	1949-58.
IIh.	"	"	distr. of spawning groups	Lofoten 1950-58
IIi.	Norwegian catch of skrei	1949-58	by age-groups.	
IIj.	"	"	of spring cod	1949-58 by age groups.
IIk.	Age/length keys	skrei	Lofoten	1949-58

Table IIIA.	Catch statistics	Region I.
IIIb.	"	" " I Ia.
IIIc.	"	Lofoten
IIId.	"	Region I 1953-57
IIIe.	"	" I Ia 1953-57.
IIIf.	"	" IIb 1953-57.
IIIg.	"	Total 1915-57.

Table IV a.	Effort statistics	Region I
IV b.	"	" " I Ia
IV c.	"	Lofoten

Table V a.	Trawl selectivity	cod.
V b.	"	" haddock.
V c.	"	" redfish.

Table VI a-e.	Tagging experiments	Lofoten	1953-56.
VI f-j.	"	"	Region I 1953-56.

Table VII a.	Length-weight (round fish) relation.	Region I
VII b.	"	" " " Lofoten (March only)
VIII.	Otolith types.	

Soviet-Russian data.

- Table 1 a. Area I (Southern Barents Sea). Length Composition of Trawl Catches of Cod 1930-1941.
- Table 1 a (cont.) 1946-1958
- Table 1 b. Area IIb (Bear Island- Spitsbergen). Length Composition of Trawl Catches of Cod 1946-1958.
- Table 2 a. Area I Age Composition of Trawl Catches of Cod 1945-1958.
- Table 2 b. Area II b Age Composition of Trawl Catches of Cod 1946-1958.
- Table 3 a. Area I Cod. Length-Age Keys 1950-1958.
- Table 3 b. Area IIb Cod. Length-Age Keys 1950-1958.
- Table 4 a. Area I Statistics of Bottom Fish Catches 1934-1958.
- Table 4 b. Area IIb Statistics of Bottom Fish Catches 1934-1958.
- Table 5 a. Area I Length Composition of Trawl Catches of Haddock 1947-1958.
- Table 5 b. Area I Age Composition of Trawl Catches of Haddock 1947-1958.
- Table 5 c. Area I Haddock. Length-Age Keys 1950-1958.
- Table 6. Area I Cod. Average Weights by Size-Groups 1934-1941.
- Table 6. (cont.) 1949-1958
- Table 7. Area I Cod. Average Lengths by Age Groups 1946-1958.
- Table 8. Area I Haddock. Average Weights by Size Groups 1949-1958.
- Table 9. Area I Haddock. Average Lengths by Age Groups 1949-1958.
- Table 10a. Mean Temperatures on the Kola Meridian Section for 0-50m layer.
- Table 10b. Mean Temperatures on the Kola Meridian Section for 0-200m layer.
- Table 11. Average Catches per one Hour of Trawling 1931-1941, 1945-1958.